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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/083,508

02/27/2002

Tadayuki Fukuhara

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02/27/2006

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EXAMINER

KIM, WESLEY LEO

ART UNIT

PAPER NUMBER

2688

DATE MAILED: 02/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/083,508	Applicant(s) FUKUHARA ET AL.	
	Examiner Wesley L. Kim	Art Unit 2688	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-5 is/are allowed.
- 6) ☒ Claim(s) 6-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/16/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

This Office Action is in response to arguments filed on 11/2/05.

Applicant's arguments with respect to claim 6-8 have been considered but are moot in view of the new ground(s) of rejection.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 12/16/05 was filed after the mailing date of the Non-Final Action mailed on 6/22/05. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

The examiner notes that the Japanese Document 53-084619 has not been considered since it did not have a translation.

Allowable Subject Matter

Claims 3-5 which were allowed in the previous Office Action submitted on 6/22/05 is maintained as allowable.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. **Claims 6 and 8** are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The process for determining an angle of polarization plane is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re*

Mayhew, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The preamble of claims 6 and 8 recite, "...determining an angle of polarization plane from a vertical plane or a horizontal plane in a radio LAN master station system..." however the body of the claim only recites, "selecting one of a horizontal polarization and a vertical polarization of each antenna, so that interference of said antenna is the smaller", the limitations in the body of both claims make no connection as to how the selection of a polarization of each antenna results in the determination of an angle of polarization which.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 6-8** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- **Claims 6 and 8** are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the limitations in the body of both claims make no connection as to how the selection/determination of a polarization of each antenna (in body of claims) results in the determination of an angle of polarization (in

preamble). The examiner is confused as to how selecting one of a horizontal polarization and a vertical polarization of each antenna, so that interference of said antenna is the smaller results in determining an angle of polarization plane as stated in the preamble.

- **Claim 6** recites the limitation "the smaller" in line 7. There is insufficient antecedent basis for this limitation in the claim. The examiner notes that the applicant most likely meant to say, "...that interference of said antenna is smaller", and however even if this were the case, the examiner is confused as to what the interference is smaller than.
- **Claim 7** recites the limitation "said antenna" in line 6. There is insufficient antecedent basis for this limitation in the claim. The examiner notes that a plurality of antennas was recited however the limitation "said antenna" is geared towards only one antenna. The examiner is confused about where in the limitations a single antenna was identified such that "...interference in said antenna is a minimum;...".
- The term "small" in **claim 8** line 7 is a relative term which renders the claim indefinite. The term "small" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The examiner is unclear as to what small really means in context with the claim. What does it mean

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to say the interference is small? The examiner asks the question
smaller than what?

The examiner will examine the claims to the best of his understanding of the
claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for
all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable
over Shapira et al (U.S. Pub. 2003/0162566 A1) in view of Garrison (U.S.
Pub. 2004/0063433 A1).

Regarding Claim 6, Shapira teaches a radio LAN master station
(Par.5;1-2) comprising; a transceiver (Fig.4A), a plurality of directivity
antennas directed to each specific directions (Par.5;2 and Fig.3B), a
power distributor coupling said antennas with said transceiver (Fig.4A,
splitter), however Shapira **is silent on** selecting one of a horizontal
polarization and a vertical polarization of each antenna, so that
interference of said antenna is the smaller.

Garrison teaches selecting one of a horizontal polarization and a
vertical polarization of each antenna (Par.68;5-13, Par.70;7-10, Par.75;10-
20, and Fig.6B, it is obvious one antenna is set (i.e. selected) to be

horizontal/vertical polarization and the adjacent antennas are set (i.e. selected) to be orthogonal, i.e. opposite of what the adjacent antenna is), so that interference of said antenna is the smaller (Par.68;7-9 and Par.70;7-10, polarizations are set to minimize interference).

To one of ordinary skill in the art, it would have been obvious to modify Shapira, such that the interference of said antenna is the smaller by selecting one of a horizontal polarization and a vertical polarization of each antenna, to provide a method of making sure the horizontal and vertical polarization can be interspersed within each cell to provide for greater isolation between signals, resulting in a further reduction of interference and provision of the best service to the users within the service area..

Regarding Claim 8, Shapira teaches a radio LAN master station (Par.5;1-2) comprising; a transceiver (Fig.4A), a plurality of directivity antennas directed to each specific directions (Par.5;2 and Fig.3B), a power distributor coupling said antennas with said transceiver (Fig.4A, splitter), however Shapira **is silent on** (a) the antennas being classified into groups each having a plurality of antennas, so that interference between adjacent groups is small; (b) determining a polarization plane of a first antenna in a first group; (c) determining a polarization plane of a second antenna in a first group, said second antenna locating adjacent to said first antenna, so that a polarization plane of said second antenna is orthogonal to a polarization plane of said first antenna; (d) repeating said

step (c) for other antennas; and (e) repeating said steps (b) and (c) for the antennas in other groups.

Garrison teaches (a) the antennas being classified into groups each having a plurality of antennas, so that interference between adjacent groups is small (Par.70;1-10 and Fig.6B, as can be seen from the figure adjacent sectors have opposing polarizations where polarizations are vertical or horizontal (Par.68;7-13)); (b) determining a polarization plane of a first antenna in a first group (Par.68;5-13, Par.70;7-10, Par.75;10-20, and Fig.6B, it is obvious the polarization of one antenna is determined to be horizontal/vertical polarization and the adjacent antennas are set (i.e. selected) to be orthogonal, i.e. opposite of what the adjacent antenna is); (c) determining a polarization plane of a second antenna in a first group, said second antenna locating adjacent to said first antenna, so that a polarization plane of said second antenna is orthogonal to a polarization plane of said first antenna (Par.68;5-13, Par.70;7-10, Par.75;10-20, and Fig.6B, it is obvious the polarization of one antenna (i.e. first antenna) is determined to be horizontal/vertical polarization and the adjacent antennas (i.e. second antenna) polarization is determined to be opposite of what the first antenna is); (d) repeating said step (c) for other antennas; and (e) repeating said steps (b) and (c) for the antennas in other groups (Par.75;10-Par.76;4, to the examiner it is obvious that the adjustment of the polarization of other antennas in the network is performed to minimize co-channel interference between sectors of cells and adjacent cells).

To one of ordinary skill in the art, it would have been obvious to modify Shapira, such that the interference of said antenna is the smaller by selecting one of a horizontal polarization and a vertical polarization of each antenna, to provide a method of making sure the horizontal and vertical polarization can be interspersed within each cell to provide for greater isolation between signals, resulting in a further reduction of interference and provision of the best service to the users within the service area.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shapira et al (U.S. Pub. 2003/0162566 A1) and Garrison (U.S. Pub. 2004/0063433 A1) in further view of Ma et al (U.S. Patent 4801940).

Regarding Claim 7, Shapira teaches a radio LAN master station (Par.5;1-2) comprising; a transceiver (Fig.4A), a plurality of directivity antennas directed to each specific directions (Par.5;2 and Fig.3B), a power distributor coupling said antennas with said transceiver (Fig.4A, splitter), however Shapira **is silent on** rotating a polarization plane of each antenna so that interference in said antenna is a minimum; and determining an angle of polarization plane which provides said minimum interference.

Garrison teaches rotating a polarization plane of each antenna so that interference in said antenna is a minimum (Par.75;10-20 and Par.76;1-4, the polarization between pairs of opposing sectors within a cell have been swapped, i.e. rotated 90 degrees to reduce interference);

Ma teaches an antenna mounted on an earth station (i.e. master station) determining an angle of polarization plane which provides said minimum interference (Col.10;4-10 and Col.12;48-52). The examiner notes that Ma teaching is geared towards antennas for TVRO systems, however Ma teaching is nevertheless teaching manipulation of antennas in a master station (i.e. earth station) to reduce the interference, which is what is going on in the immediate claim.

To one of ordinary skill in the art, it would have been obvious to modify Shapira and Garrison, such that rotating a polarization plane of each antenna so that interference in said antenna is a minimum; and determining an angle of polarization plane which provides said minimum interference, to provide a method of minimizing co-channel interference between the sectors of the cells and neighboring cells in a network to provide the best service to the users within the service area.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley L. Kim whose telephone number is 571-272-7867. The examiner can normally be reached on Monday-Friday 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WLK



GEORGE ENG
SUPERVISORY PATENT EXAMINER